

SPECIAL REPORTS

The 5G Chip Stock That Will Spark a \$53 Trillion Revolution

By Luke Lango July 22, 2021

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On August 2, 2018, Apple became the first American company to cross the **\$1 trillion** threshold in market value.

That's a "1" with 12 zeros after it.

At the time, Apple's crossing of that historic milestone was a big, hyped-up event that made all the major news outlets.

But since then, three other companies have joined Apple in the "Trillion Dollar Club": Facebook, Microsoft, and Amazon.

Think about that list for a moment...

There's no car maker on it like Ford. No big manufacturer like General Electric. There's no oil company, no mining company, no steel company, and no banking company.

The market has spoken. Technology – with its ability to create smartphones, software, time-saving apps, social media platforms, online shopping experiences, medical advancements, and so much more – is now the most dominant, most valued part of our economy.

Tech entrepreneurs and investors are making fortunes as a result.

If Apple, Alphabet, Amazon, and Microsoft are the tallest skyscrapers – the commanding heights of our “economic city” – it’s no exaggeration to say their foundations rest on the bedrock of our communications grid...

The internet. Without this bedrock, those skyscrapers crash to the ground.

As you read this report, the next trillion-dollar companies – the next Amazon, the next Alphabet, etc. – are being hatched in research facilities and garages around the world. These firms will further change the world and revolutionize our economy.

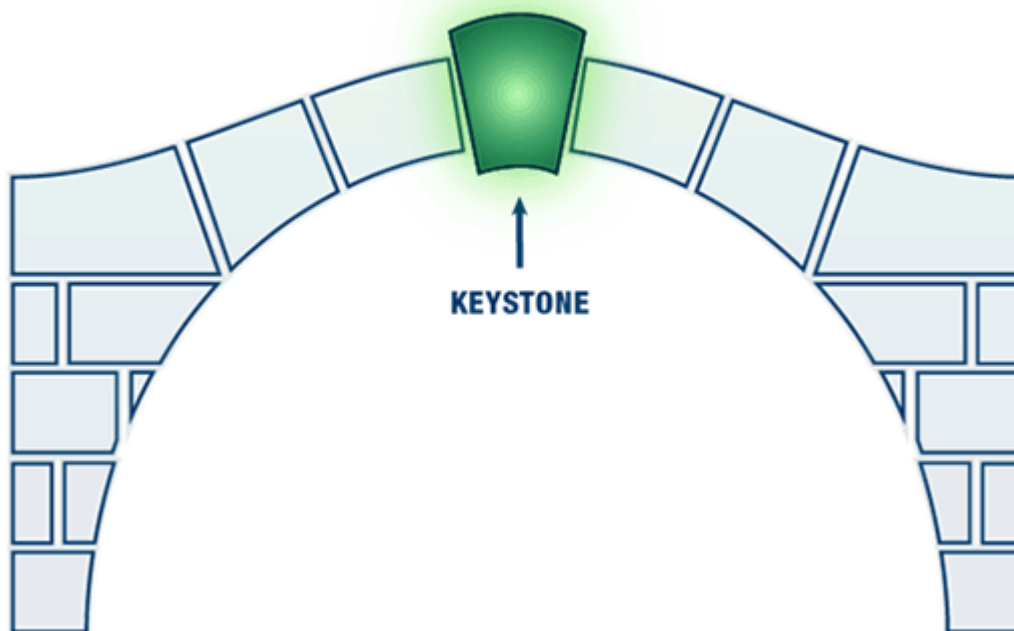
If you follow technology even a little bit, you know what fields these companies operate in: self-driving cars, artificial intelligence, virtual and augmented reality, next-generation batteries, the Internet of Things (IoT), mobile payments, and on and on.

Just as Apple, Alphabet, Amazon, and Microsoft can’t function without the internet, the next generation of world-changing, \$1 trillion mega winners can’t survive without the subject of this report... the super powerful infrastructure technology we call “5G.”

5G is the next “keystone” technology.

Why do we call it this?

Because a keystone is the central and most important piece in an arch – one of the strongest structures in the world.



Without the keystone, the rest of the structure would crumble and fail.

5G is so big and so powerful it will singlehandedly drive all other technologies over the next several decades.



In this report, I want to help you understand what 5G is, why it's so revolutionary, and how we can make money. And I'll detail my top 5G pick that I expect will soar in value as 5G goes worldwide.

Owning the Infrastructure Can Multiply Your Money

There has been strong demand for better and faster communications for literally thousands of years – from smoke signals to homing pigeons to the Pony Express,

telegraphs, and telephones. Call it the thousand-year bull market... one that I can see continuing for another 1,000 years.

Fortunately, we don't need to think that far ahead to make money now. The next great leap in technology and communications is happening as we speak, and this move to 5G is going to be the biggest one yet.

Just think about how technology has become an integral part of our lives over the last century. If you take technology away, almost everything collapses. It used to be roads that were considered our most important infrastructure. Now it's the information super highway.

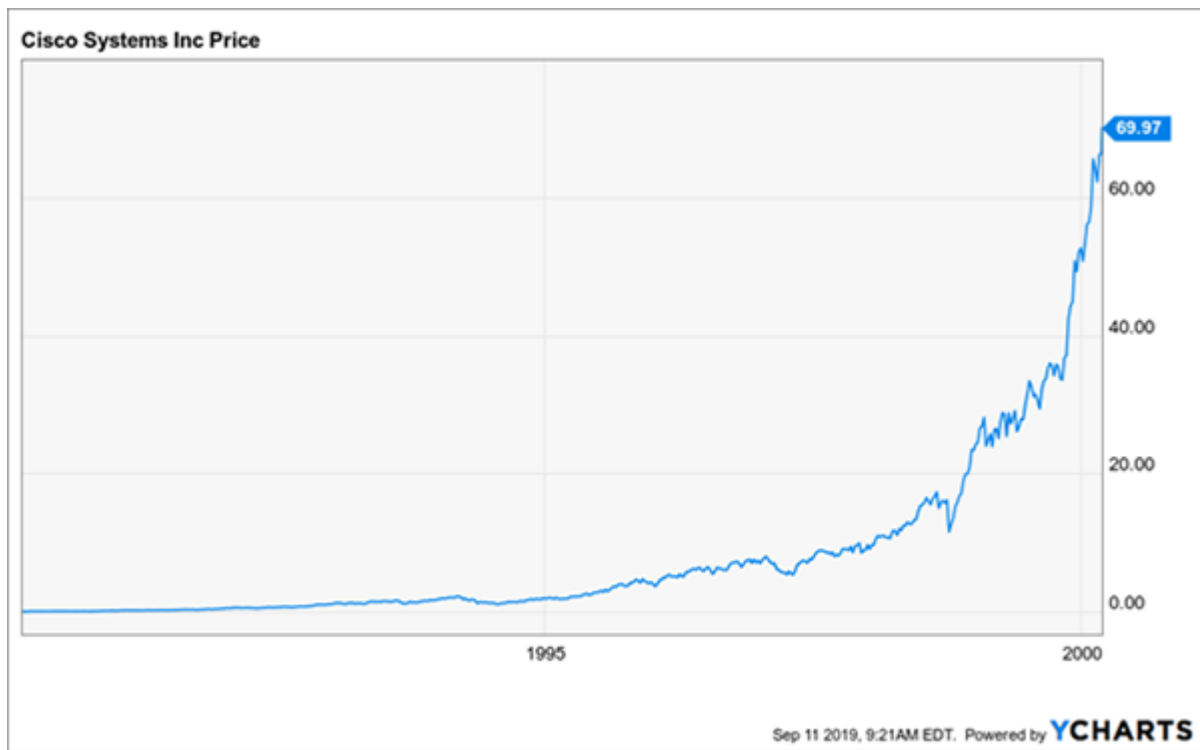
That super highway has been built over the last quarter century or so as the internet moved from government and academia to commercial networks and enterprises. It is now everywhere, from our computers and our phones to our cars, and even our appliances.

Investors who recognized this trend in the 1980s and 1990s and owned the best internet "infrastructure" stocks made a ton of money.

Intel was the king of semiconductors, or chips. Keep this theme in mind. Its stock soared more than 3,500% in the 1990s.

Applied Materials made the equipment that made all of those semiconductors. Its return in the 1990s? More than 6,150%.

Then there was Cisco, the king of communications and networking equipment. The stock surged from under \$1 per share in the early '90s to \$43 by the end of the decade – life-changing returns of nearly 34,000%!



I'm telling you this because we are now on the verge of a new infrastructure that will not only make communications faster but also enable the next generation of technological innovations across the world.

Similar to the 1990s, smart investors have rare opportunities for life-changing profits.

The Next Mobile Communications Revolution

Martin Cooper stood on 6th Ave. in Manhattan. It was Tuesday, April 3, 1973.

The senior engineer at Motorola was nervous. He was about to attempt the first cell phone call in history.

Would it work?

Cooper didn't call a family member, a friend, or even a co-worker. Instead, he called his chief competitor, Dr. Joel Engle at Bell Labs. The two had been in a race to get to this day first.

“Joel, this is Marty,” he said. “I’m calling you from a cell phone, a real handheld personal cell phone.”

Consider those the first words in the mobile communications revolution... the first step on the road to 5G wireless communications.



Martin Cooper in 2007 reenacting the first cell phone call from 1973.

It took nearly another decade before mobile phones were introduced to the public, but by the 1980s they were creeping into the cars of wealthier individuals. The **first generation** of mobile technology kicked off the trend toward an increasingly connected world.

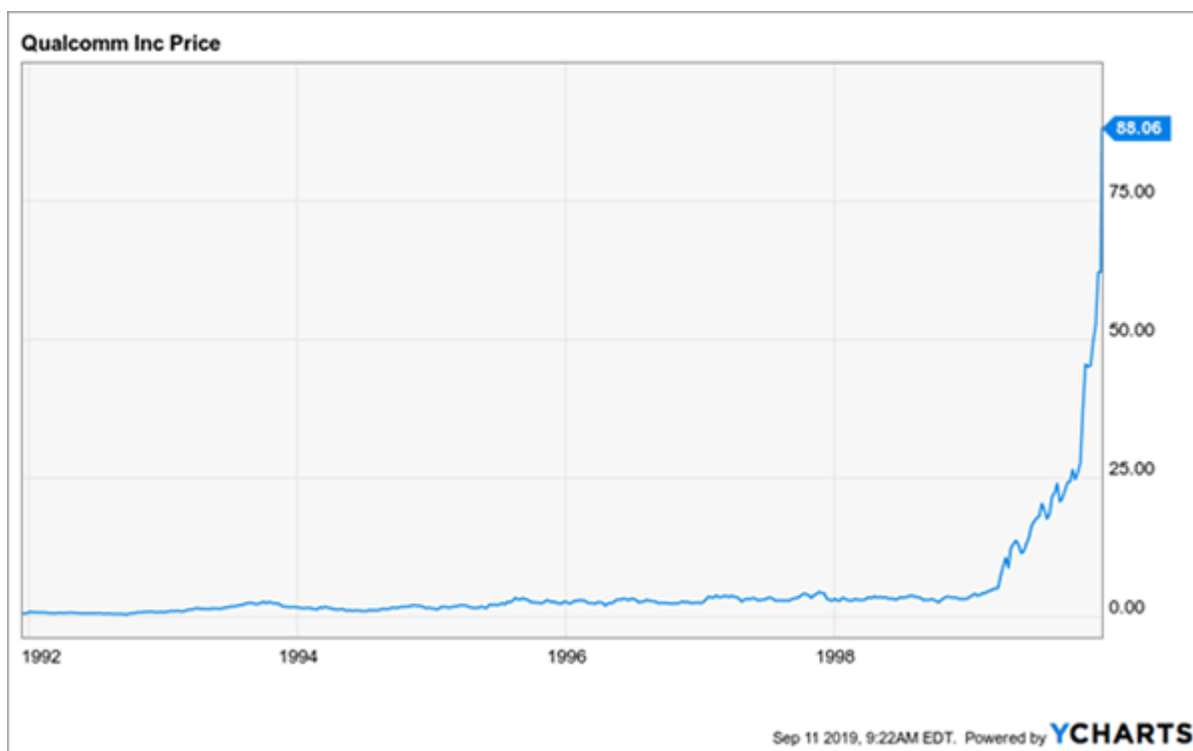
The early devices weighed a couple of pounds and were bigger than your head – they are called “bricks” for a reason! We can make fun of them now, but they made possible something that had never been done before.

The **second generation** of networks (2G and 2.5G) debuted in the 1990s. This next stage included the ability to send text messages, something we now take for granted. Heck, a lot of people text more than make actual phone calls.

As the calendar turned over into the new millennium, the upgrade to 3G brought major advances in the speed and capabilities of cellular networks. With the **third generation** of networks, mobile devices could access broadband technology, which made possible entertainment, web browsing, and shopping.

There is now a whole generation of people who find it hard to believe that there used to be no Amazon app to instantly reorder your toilet paper.

Just as semiconductors were part of the internet infrastructure, chips were also the backbone of the step up to 3G. (There's that theme again.) As a result, chip stocks made big money for investors during this era. Qualcomm rallied more than 1,000% in the 1990s ahead of when 4G networks started to appear.



That's where we are today, but not for much longer. As nice as it was to be able to browse the internet on your phone, the **fourth generation** of wireless connectivity took mobile technology to another level, including the ability to stream video without waiting for buffering. It was more enjoyable, and it opened up huge business opportunities for content companies.

The biggest advancement was real-time information, which led to what we call the sharing economy. People could connect instantly through their mobile devices. Without real-time data transfer there would be no Uber, GrubHub, or any other app that relies on a fast connection.

Once again, there was money to be made in the switch to 4G. Cell tower companies were among those enjoying huge rallies. The new capabilities and increasing use of video meant that better towers were required.

Two of the leading cell phone tower companies brought big profits to their investors over the last 10 years. Since the start of 2009, American Tower is up 623% while competitor Crown Castle International has gained nearly 700%.

And now, the most advanced breakthrough of all is right around the corner.

5G's Widespread Impact

As far as we've come, we haven't seen anything yet. In fact, I believe the opportunities from 5G will be even bigger than before because this next leap will drive some of the most powerful tech trends the world has ever seen.

I think of it as the next-generation toll road. The road to the future passes through 5G, and it's time to set up your booth and start collecting.



The next-generation network will take speeds to levels that seem almost unimaginable.

How fast?

Well, in theory 5G will increase speed to match that of human reflexes... so we're talking the blink of an eye. Perhaps literally.

4G network speeds clock in at around 100 megabits per second, which is extremely fast compared to its predecessor. Once 5G rolls all the way out, that speed jumps to 10,000 megabits per second – or 100 times faster than the current network!

Why should I even care that 5G will be 100 times faster? My phone and tablet stream videos nearly flawlessly already.

For one, it will eliminate those slow connections we still run into at times, which is nice, but ultimately unimportant.

The game changer here is that phones and mobile devices are about to become mobile supercomputers.

This big breakthrough will be the ability to connect millions more devices that share large amounts of data in real-time. If you think we live in a connected world already, get ready. The widespread impact will be felt in just about every corner of our lives and economy.

Here are just some of the key industries that will be impacted.

Internet of Things: Every generation of networks has its shining moment, and in the first few years 5G is deployed, the most noticeable change will have to do with the IoT. As billions of devices are connected every year, extremely fast mobile network speeds will be required.

The IoT is already alive and well. Think of that speaker in our home that can reach Amazon and order new curtains, change the temperature setting, unlock your doors, turn on your lights, start your car, and more.

Think of your refrigerator telling you that you are low on milk. Or your dryer texting you that your clothes are ready.

Think of your fitness tracker that uses GPS to track your workout, record your heartbeat, and save all of that information in your personal account.

Thanks to all of this connectivity, we can do today what was difficult to even imagine just a few years ago. Once 5G is mass deployed, it will take the IoT to an entirely new level.

From a consumer point of view, we may not notice huge changes immediately. Behind the scenes, though, the faster speeds will make a major difference for corporations. The elimination of slow connection speeds and intermittent issues should result in another economic boom.

IHS Markit estimates that the number of connected IoT devices will grow from nearly 27 billion in 2017 to 125 billion by 2030. That's a ton of new devices using the 5G network.

Augmented and Virtual Reality: AR and VR could not function without very fast connection speeds. 5G will allow both to flourish.

The first thing that may come to mind is gaming, which is indeed a large part of the AR/VR industry. 5G speeds are necessary for eSports matches featuring players from around the world competing for large cash prizes. Can you imagine a championship competition with a \$1 million prize on the line and suddenly the connection blips? That would be one expensive blip to somebody. The burgeoning world of eSports will generate billions of dollars globally in the future, thanks to 5G.

But AR and VR go well beyond gaming. Consider retail. This industry already spends over \$1 billion annually on AR/VR. With 5G speeds, a retailer will be able to offer a nearly real-life experience to shoppers.

Say you want to buy a couch. Wouldn't it be great if you could "try it out" and see how it looks in your house? An AR app will put the couch in the room you want it in, add a human avatar, and let you move it around to see exactly what it would look like. (If we could only get those avatars to help us move real furniture!) 5G will enable the speed and low latency needed for such an app to work effectively. Latency is the delay between when the signal sent and received on the other end. 5G will bring down so there is

nearly no delay, which is required for the next generation of technological advancements. The retail industry may never be the same again.

Smart Cities: We're already seeing smart cities emerge as connectivity helps monitor traffic, energy, crime, and more, but the smart city I envision is just starting to take shape.

A lot of cities have held back on spending until the next generation of networks is ready to roll out. Think about what becomes possible: real-time connections between traffic cameras and the police department, traffic lights that change based on conditions at that moment, and smart streets embedded with sensors that pass data to the municipalities.

Even whole nations are moving forward. Twenty-seven years ago, Estonia was a tiny castoff from Soviet Russia that barely made a blip. Today, according to *Wired* magazine, it's "the most advanced digital society in the world." The small Baltic nation has become known as the "Silicon Valley of Europe."

The reason why is simple. Estonia is one of the first nations in the world adopting 5G on a mass scale. Factories are almost completely automated, thanks to 5G. It has digitally streamlined most aspects of public services, with 50 new government artificial intelligence (AI) projects set for next year. You can even challenge your parking ticket online from your smartphone!

Fortune magazine has dubbed Estonia simply "Tomorrowland." It's one of the most innovative and entrepreneurial societies in the world today. Estonia now has more business startups per person than any other country in the world. Its GDP is growing nearly three times faster than America's. Its stock market is soaring, and the average resident's income has more than quadrupled since going digital. And it will advance even more as 5G technology rolls out.

I spend a lot of time researching and thinking about the future, and while Estonia gives us a glimpse of what's to come, I must admit that even I have a difficult time imagining how different our cities and world will look 10 years from now. What I do know is that none of it will be possible without 5G.

The Cloud in Real-Time: A decade ago, people didn't even know what "the cloud" meant. It sounded like it should be part of the weather forecast. The thought of storing our life's work in the cloud seemed like science fiction. Today, our documents, family pictures, music, and just about everything else live in the cloud.

The evolution of mobile networks paved the way for the cloud. Without the advancements, it would still be impossible to store and share files not located on our devices. With 5G, the cloud will be real-time. No delays. Retrieving data will be as fast as if it were stored on each individual device.

As usage spreads, Cisco predicts that data center traffic will hit 19.5 zettabytes per year by 2021, up 225% from 6 zettabytes in 2016. (It seems we need to make up new terms to keep up, doesn't it? If you're wondering, a zettabyte is equal to one billion terabytes or a trillion gigabytes.) Even more eye-popping is that data center traffic from the cloud will make up virtually all data center traffic – 95% of the total.

Healthcare: Investors sometimes look past healthcare when thinking about technology because it's been around forever. Please don't make that mistake. There is a lot of opportunity here – we're talking \$76 billion in revenue for companies by 2026 in healthcare and 5G.

Health devices will talk to each other reliably and instantly. At a consumer level, we're looking at things like the Apple Watch, which is already evolving into a wearable medical device. Within a few years, it will monitor your vitals 24/7 and send that information to your doctor.

More importantly, reliable and instant communication will allow increased usage of healthcare devices. We already have robotic surgeries, and we can expect more in the future... including remote robotic surgeries.

5G and the Future of Transportation

There is one industry in particular that cannot exist without 5G, and it's huge. I call it Transportation 2.0, which includes both electric and autonomous vehicles (AV).

Investors who got in early during prior transformational trends profited to the tune of 20 to 50 times their money. The AV/5G mega-trend is another that cannot be ignored.

Transportation is a *\$7 trillion* industry. It is about to be completely transformed for the first time in nearly a century. The full rollout of the 5G network will provide the much-needed communications infrastructure for auto manufacturers to introduce AVs to the masses.

This may be the biggest breakthrough of all, and again, it would not be possible without the reliability and real-time data sharing that 5G enables.

Imagine a self-driving car going 70 miles an hour down the highway and the network experiences a blip, a 100-millisecond delay. In virtually every other circumstance, that delay would never be noticed, but it could be devastating in an AV. It could result in the braking system stopping the vehicle 10 feet beyond where it would have otherwise, potentially leading to a major accident.

Future AVs will be data centers on wheels. The amount of data stored in the brain of the vehicle will be beyond what we can imagine.

Morgan Stanley predicts that a 2050 AV will produce 40 terabytes *per hour*. A terabyte is equal to one trillion bytes, or one thousand gigabytes. Today, your iPhone produces maybe 2-5 gigabytes of data *per month*. If Morgan Stanley is correct, a 2050 AV will produce 500 times more data in one hour than your iPhone currently produces in an entire month!

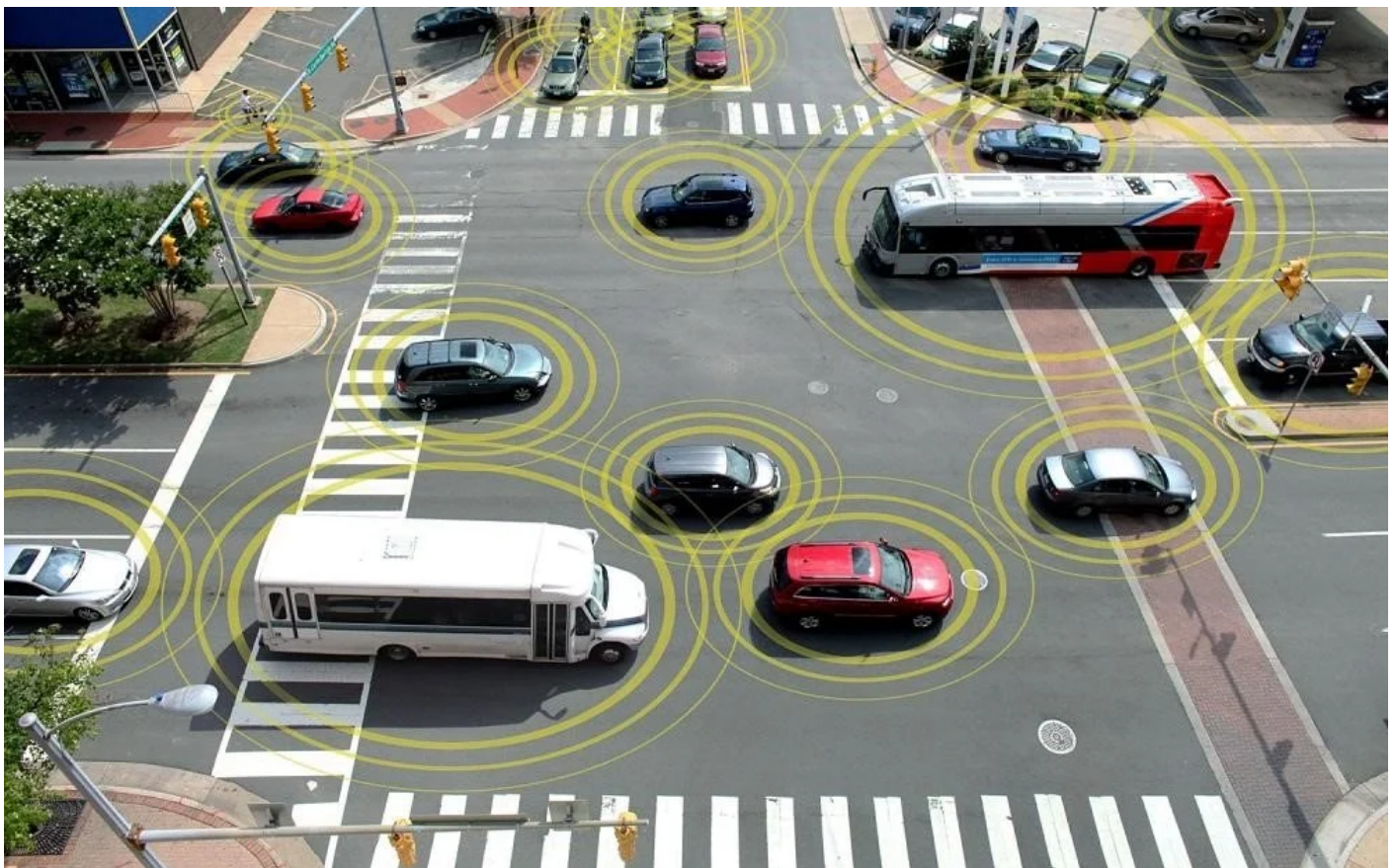
Such enormous amounts of data will be required due to the number of decisions taking place at all times. The AV will take in data from sensors surrounding the vehicle and instantaneously decide when to accelerate, brake, turn, etc.

And not only will the vehicle need 5G for computing within itself, it will also “talk” to sensors in other vehicles, the roads, cell towers, satellites, smart cities, and more.

The thought of vehicles talking to each other makes me think of some creepy sci-fi images... or on a lighter note, the movie *Cars*. (Below, Mater the tow truck helps Lightning McQueen.)



In reality, vehicles talking to each other will look nothing like the Disney movie but more like the image below. Notice that everything in that picture has a sensor that is communicating with other sensors in the area. Even the man pushing the child in the stroller (in the upper left of the picture) and the bicyclist (top center behind the van) are “talking to the vehicles!”



Toyota has plans to deploy its vehicle-to-vehicle (V2V) and vehicle-to-infrastructure (V2I) technology in the U.S. by 2021. Again, the rollout of V2V and V2I is impossible without widespread 5G. The current 4G network is great for streaming videos, but the speed and latency would create major safety issues for AVs.

The Greatest Investment for the New Tech Revolution

I hope I've given you a sense for how 5G networks will pave the way for so many breakthrough innovations that will change our world. Not just faster phones, but self-driving cars, smart homes and cities, virtual reality, healthcare, and so much more.

When exactly does all of this excitement happen?

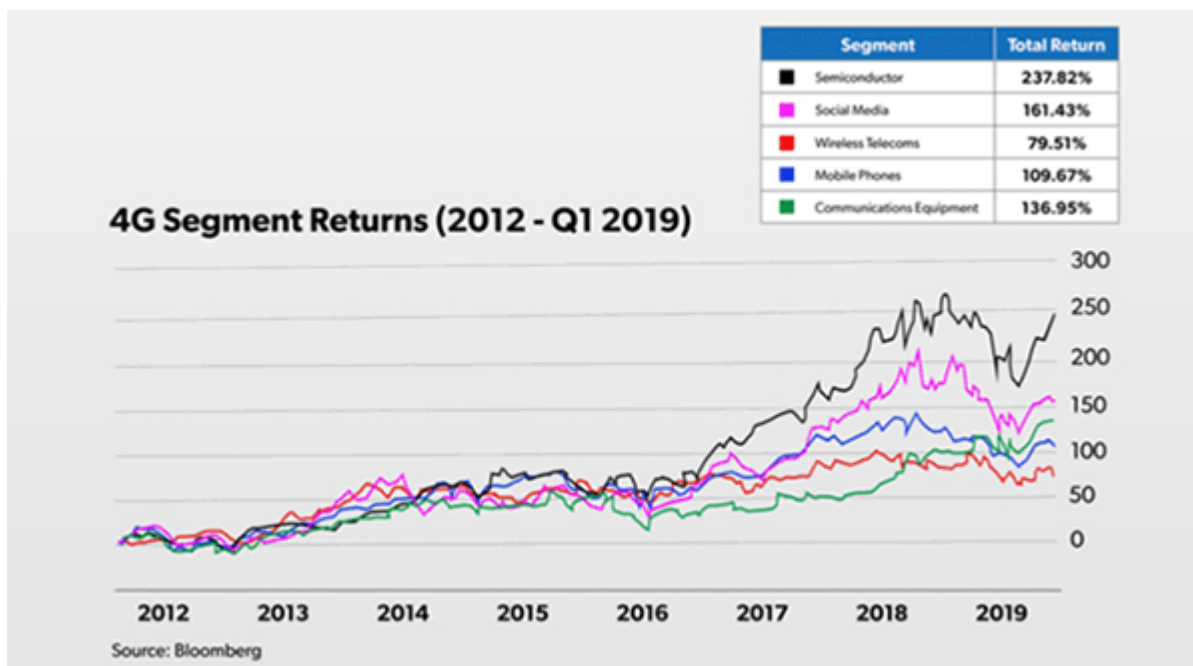
It already is. You may have seen advertising for 5G home internet service in some cities. Smartphone manufacturers are already rolling out the first 5G-enabled phones. The pace will only pick up from here, and that's true of stock prices, too. That's why now is the time to invest – because stocks move ahead of specific developments.

There'll be a lot of winners in the race to 5G.

As 5G takes the world by storm and ushers in a new technological revolution, the greatest potential for life-changing profits comes from one area in particular... the chipmakers.

If you think about 5G as the fuel of the future, then microchips will be the engine. The companies focused on creating chips that send and receive the massive amounts of data required to power 5G will drive this revolution.

It's the theme we talked about earlier. Chipmakers are almost always the secret to getting rich with new technologies. They prevailed once again in the smartphone and 4G revolution. Chipmakers led all other industries during the 4G build out by returning 237%.



Keep in mind, these were broad sector returns. But once you zoom in on individual companies, the gains are simply incredible.

It's worth pointing out that even Apple – the world's biggest, wealthiest company and one of the leaders in smartphones – returned roughly 582% over that same period. Apple is a great company, but it's important you see how well chipmakers can do when a tech revolution occurs.

The same story will play out again – chipmakers will be **THE STORY** as the rollout of 5G gets underway. Just think about the hundreds of billions of new chips that will need to be created to connect every physical object on the planet.

My Top Chip Recommendation: MRVL

The 5G semiconductor I believe is a must-own stock is **Marvell Technology Group (MRVL)**. The \$16.6 billion company is in the midst of pivoting its business model and is now positioned to grab a good portion of the trillions of dollars floating around the 5G trend in the next decade.

To see where Marvell is going, let's take a step back and look at where it's been. In the past, Marvell was considered a play on data storage. While that is undeniably a big trend, the related semiconductor business has grown slowly and held back stocks,

including Marvell. Data is moving from disk drives on personal computers to the cloud, but Marvell's business concentrated on the drives.

The numbers reflect the company's issues over the last few years. After peak revenue of \$3.63 billion in fiscal 2015, sales dropped 45% to \$2.3 billion two years later. During fiscal 2019 (which ended in December 2018), revenue rose slightly to \$2.86 billion but is expected to dip again this fiscal year to \$2.7 billion. (Marvell's earnings calendar is about a year ahead of the typical calendar. The second quarter of fiscal year 2020 ended in June 2019.)

Those numbers would scare me away if it weren't for what's happened the last couple of years. Marvell has shifted its focus from storage to higher-growth areas. The acquisition of three of its peers propelled the business forward and formed the basis of the company we see today.

The first acquisition was Cavium, which Marvell paid \$6 billion for and completed in July 2018. Cavium was a smaller rival that helped expand Marvell's wireless connectivity business. This was the first big move by CEO Matthew Murphy, who replaced the co-founders – Sehat Sutardja and his wife Weili Dai – in 2017. The new management team immediately updated business lines as well as the company's overall strategy. The changes will take time to truly pay off. It often takes years for multi-billion-dollar international companies to fully turn around.

Buying Cavium positioned Marvell to take on bigger rivals Broadcom and Qualcomm as it prepared for the rollout of 5G. Cavium is also a player in the automotive semiconductor business, another high-growth sector linked to 5G.

The second acquisition came earlier this year. On May 6, Marvell announced it would acquire Aquantia for \$452 million. This move put more focus on the future of connectivity and automotive technology. The result is an end-to-end ethernet connectivity portfolio.

Just two weeks later, Marvell said it would buy Avera Semiconductor, the Application Specific Integrated Circuit (ASIC) division of GlobalFoundries. Marvell agreed to pay \$650 million up front with the potential for another \$90 million if certain conditions

are met. Demand for ASIC chips will rise as 5G networks roll out, so moving into this market again set Marvell up for 5G.

Future connectivity and networking will need specialized functionality. An ASIC chip is built for a specific application, as opposed to a CPU that is a simpler, general purpose chip. Everything from the Internet of Things to artificial intelligence will need ASIC chips, and Marvell is now a major player in the booming market.

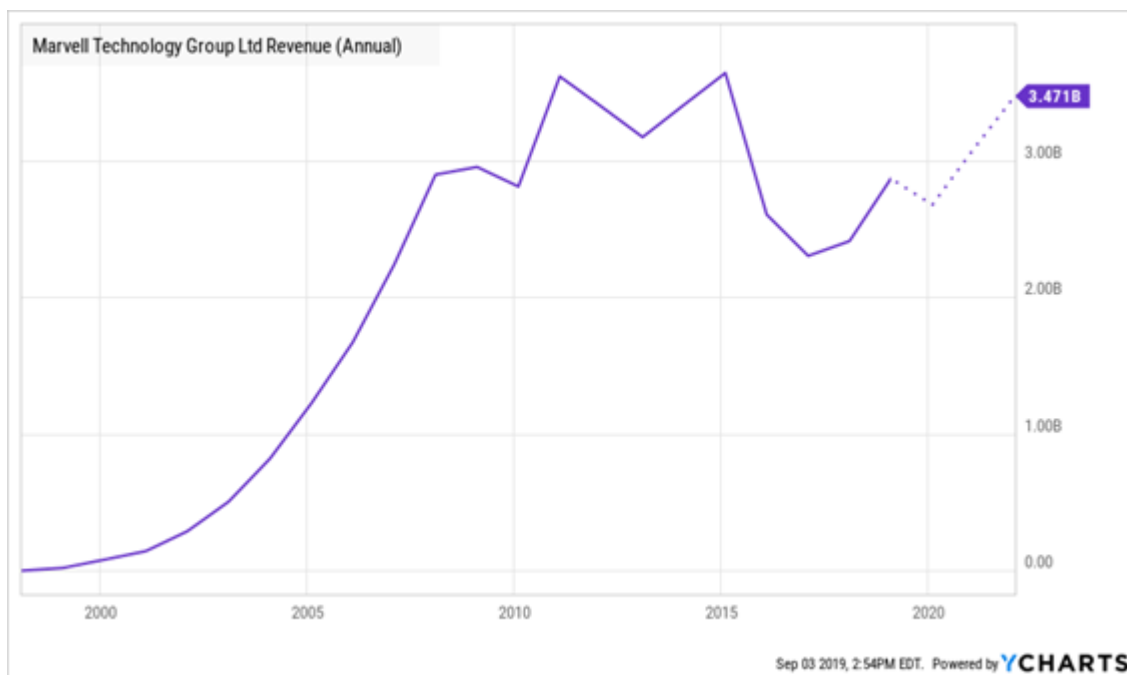
According to JPMorgan, the high-end ASIC market could be worth up to \$4 billion, and Marvell is positioned to capture a sizable chunk of that. Broadcom is the leader now, and I look for Marvell to slide into the number two spot.

As Marvell acquired three high-growth companies, it also dumped a slow-growth and low-margin business. In June, Marvell sold its connectivity portfolio (mostly its WiFi and Bluetooth technology) to NXP Semiconductors for \$1.76 billion in cash. The portfolio generated approximately \$300 million in sales in fiscal 2019. Getting roughly 6X sales for a business holding the company back is a great move.

Back to the Future

I really like the direction Marvell is now headed, and I see a big opportunity here because of what's to come. Marvell has had its share of issues, but the worst is behind it and record revenues are only a few years away.

You can see on the chart below how annual revenue began to dip in 2015 but is now on the upswing. The dotted line represents estimates for this year and the next two years. For fiscal 2022, Marvell is expected to generate nearly \$3.5 billion in annual revenue. I believe that number is too low and that the company will achieve a new revenue record by fiscal 2022 (2021 on the calendar).



Earnings are also on the upswing. The company earned \$1.19 per share each of the last two fiscal years. This year (fiscal 2020), Marvell expects earnings to dip to \$0.70 per share before rebounding to \$1.13 and then \$1.47 in the following years.

Bottom line: A major turnaround is taking place in both the numbers and the entire business model. By focusing on 5G and several key niche areas, Marvell is positioning itself as a leader in one of the biggest trends of the next 10 years.

The estimates for the coming years are too conservative in my opinion. I base much of that on past cellular technology revolutions. Once 5G really starts to expand, it will lead to increases in revenue estimates. And when that happens, stock prices follow.

This year is similar to 2012 for 4G. The 4G stocks were little changed for the entire year until the technology started its full rollout in 2013. Then, stock prices began to skyrocket. I see a similar pattern in 5G stocks, with 2020 being the year of 5G.



With that, **I recommend buying MRVL up to \$60.** I see much higher prices in the years ahead.

Now Is the Time

Marvell Technology is one of the best in the world at what it does, and most investors have never heard of it. When they hear Marvel, they think of comics.

But it won't stay that way for long. The financial media is already calling this company "the next hot 5G stock."

Marvel's 5G chips will be used in everything from transportation and industrial manufacturing to entertainment and public services. It has over 10,000 patents and has been named a Top 100 Global Innovator for seven consecutive years.

Its success has led to long-term partnerships and exclusive deals with global juggernauts like Samsung and Oracle. Even 5G cell service companies like telecom giants Verizon and AT&T will depend on this company's chips.

In a few short years, once the 5G buildout is complete, Marvel's chips will likely be on every street corner in America. Everything, and I mean EVERYTHING, connected to the internet via 5G will either directly or indirectly use the same type of chip this company makes.

That's why I think this is single-handedly the easiest way to make a fortune off the 5G revolution, and now is the time to invest. News of this company and the wealth-building opportunity it will create is starting to spread.

Tech insiders estimate more than one trillion devices will be connected over the next 10 to 15 years. Automotive... financial services... agriculture... retail... defense... healthcare... manufacturing... media and entertainment... transportation... public safety... construction. It's all about to be revolutionized.

Remember, the rollout of 5G is going to be MUCH bigger than 4G.

4G was an improvement. 5G is a game changer.

\$53 TRILLION in new revenue will be added to the economy over the coming years, and those who become early backers of these technologies could make a fortune.

That's why I am excited about this this once-in-a-lifetime opportunity.

And its why I congratulate you on your decision to join us here in *Innovation Investor*. Right now is the perfect time to stake your claim.